The Air Line Pilot

October, 1953

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Report on Cockpit Procedures

Looking Toward Standardization, ALPA's Cockpit Procedures Committee Has Been Active for Several Years. Here is an Interim Report by its Chairman, pending Final Conclusions.

By Capt. Larry Shapiro

The scheduled airlines of the United States have had an average of two Terrain Collisions a year during the past ten years, 20 in all. All of these accidents have been recorded as having been caused by "Pilot Error." What are the Pilots doing about it?

Several years ago at the ALPA convention, a resolution was passed favoring the standardization of cockpit procedures on each airline. Standardization, the convention reasoned, would contribute to safety. An ALPA Cockpit Procedures Committee was created to study and recommend certain cockpit procedures and methods of accomplishing standardization. I have been acting as Chairman of this Committee. The Committee has several years work behind it and is faced with several more years of work ahead of it. This, therefore, is not a final report, but rather an interim summation of the conclusions thus far reached.

The majority of the airlines now have standard procedures in regard to the mechanical positioning of controls. These standard procedures are accomplished through the use of checks lists. Therefore, this ALPA Committee has concentrated its studies on those cockpit procedures which deal with navigational functions.

There are two questions involved: Is there a problem? Would standardized procedures in regard to navigational functions in the cockpit answer this problem to any degree?

To answer these questions it is necessary to examine the major airline accidents. First, they must be broken down into three general categories: Those where the prime factor of the accident is Mechanical in nature, such as the failure of a wing or an engine; Those where the prime factor is weather, such as thunderstorms, tornadoes, etc. (The DC-3 that encountered a tornado at Fort Wayne in 1951 is a good example of this.); Those where the prime factor is the Human Factor. It is these "Human Factor" accidents with which this Committee has concerned itself.

What Is "Pilot Error"

Many people write these off as being caused by "Pilot Error." Most pilots, have resented these words "Pilot Error." Particularly they have taken exception to it when loosely used in public print with no attempt to differentiate between true pilot error and that type of error which is the end result of a combination of factors that leaves the pilot holding a wet bagful of problems, so to speak. By definition, an error is "A deviation from the true course of action." The important thing, however, is what causes a human being to deviate from the true course of action. These causes might be completely outside of one's control and many of them usually are. This Committee has attempted to identify and classify these causes. Even if this is accomplished, there is still the question: Is there a serious problem to which this relates? Let's take a look at the record.

As previously mentioned, there have been twenty major terrain collisions in the past ten years involving aircraft (and in someway involving human factors) of the United States domestic scheduled airlines. These don't include runway undershoot or overshoot accidents, or those accidents where the prime factor was mechanical or weather. Of these, 19 aircraft were completely demolished, 340 people were killed, and the cost to the industry was well above 50 million dollars. So we do have a problem! A big one!

If we can analyze this problem in relation to the causes of this deviation from the true course of action, then we can resolve it.

Accidents Can Be Prevented

The ALPA Cockpit Procedures Committee is of the opinion that the majority of these twenty human factor terrain collisions in the last ten years could have been averted and those in the future can be greatly decreased in number if — now here's the catch— if the casual factors involved are recognized and understood, and the necessary steps taken to keep the work load placed upon a crew always below the work capacity of that crew at any given moment.

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Ed Modes, Editor

Before suggesting specific answers to accomplish this, I will point out the methods of deduction which this Committee has used to reach its conclusions.

Foremost is the relation of the normal crew work load to the optimum crew work capacity (Figure 1). It covers all phases of a flight, the preflight, taxiing, takeoff and initial climb, cruise, descent, approach, and landing. The light figures on the chart represent the number of major and minor accidents between 1946 and 1952 in each phase of flight. The 101 figure in the cruise phase actually represents those accidents in climb, cruise, and descent. To date, it has been impossible to accurately break this figure down because of the CAB methods of statistical analysis. However, the majority of these fall in the descent phase. The largest number of accidents in any one phase of flight is in the approach and landing. The bold figures represent the number of incidents (potential accidents) in each phase of flight. This is arrived at by using a ratio of eight incidents to one accident. Most experts agree this is a conservative figure.

The straight line at the top of the chart is referred to as the Optimum Crew Work Capacity Curve. This optimum is well above any normal work load which any crew experiences on a trip. It is the result of three thing: intelligence, training, and experience.

Factors Increasing Work Load

There are four things which increase the work load above any normal value. (Figure 2) These are:

- Poor cockpit organization.
- Lack of familiarity with the route, procedures, or equipment. This does not mean that the crew is not proficient in the execution of their duties. It means that their work load is greater. Their proficiency may still be at a high level.
- Inflight decisions and technique. In seven of the 20 terrain collisions, the decision had been made to fly in accordance with Visual Flight Rules. Yet, an examination of the evidence available indicates the collision with the terrain was made while on instruments.
- Abnormal conditions. This can be weather, fuel problems, air traffic control problems, or mechanical failures. With the introduction of any of these things we have a breaking away from the normal, resulting in an increased work load; add an emergency condition to this and the work load can reach a very high value.

The possibility of a crew working throughout an entire flight at their optimum work capacity is so remote that it need not be considered. However, there are usually always some intangible factors present which influence us, thereby causing the capacity for work to be somewhere below the optimum. (Figure 3).

The first group of these intangibles includes inattention, distraction, and preoccupation. Inattention in itself while taxiing an airplane can cause a taxi accident. This is a good illustration of how much influence just one of these factors can have on the moment work capacity. Acutally, when a taxi accident is caused by inattention alone, the work capacity of the crew at that given moment drops below the work load imposed upon them.

An Interrelationship

Many of these intangibles are interrelated. Some can be causes of others. For example, preoccupation in regard to one phase of a flight can cause inattention regarding another phase. A good example of this is the DC-3 that collided with the terrain about 40 miles north of Los Angeles in 1946. The evidence available indicates that the crew was greatly occupied with radio communications, ATC clearances, and Company clearances. Such Preoccupation was undoubtedly a contributing cause of inattention to navigation.

The second group of intangibles which causes the work capacity to fall below the optimum is Attitude, Mental Fatigue, Cockpit Anxieties, and Personal Anxieties. By attitude is meant the attitude one has toward his job and its responsibilities, toward his management, and the people with whom he works. One's attitude is generally formed by an accumulation of his daily experiences coupled with his general philosophy of life. It is influenced by the degree he makes such a philosophy an actuality in his daily living.

Mental fatigue is that which results from long hours of mental concentration or strain. Unresolved anxieties can contribute to such fatigue.

Cockpit Anxieties can be classified in two general groups: Those caused by physical factors such as weather, mechanical malfunctioning, fuel shortage, etc. and those caused by human factors such as tenseness resulting from

Fig. One

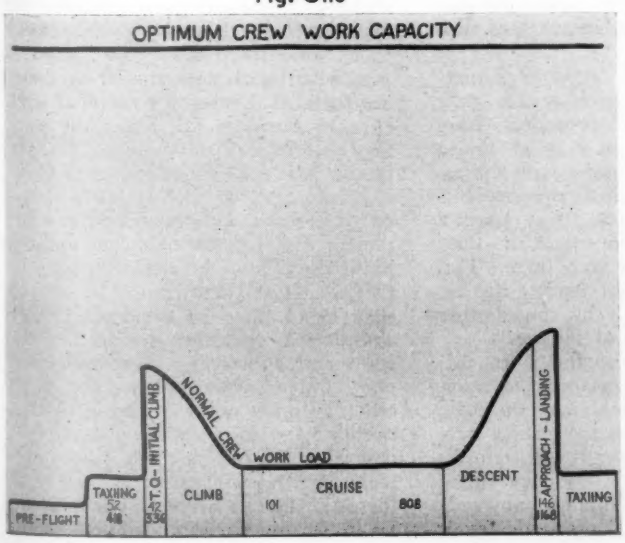
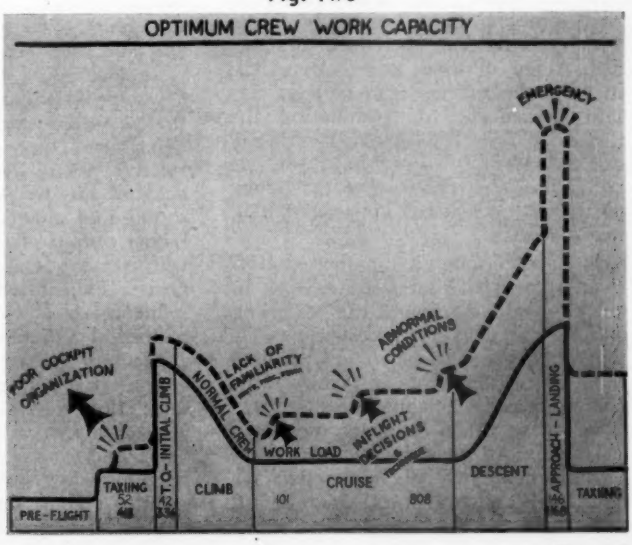


Fig. Two



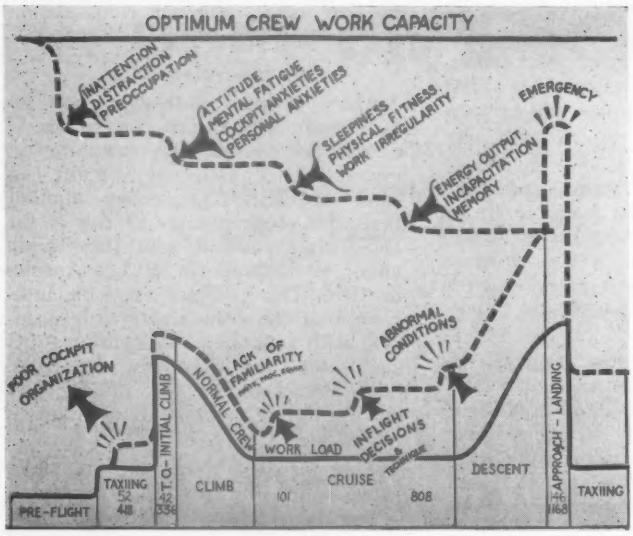


Fig. Three

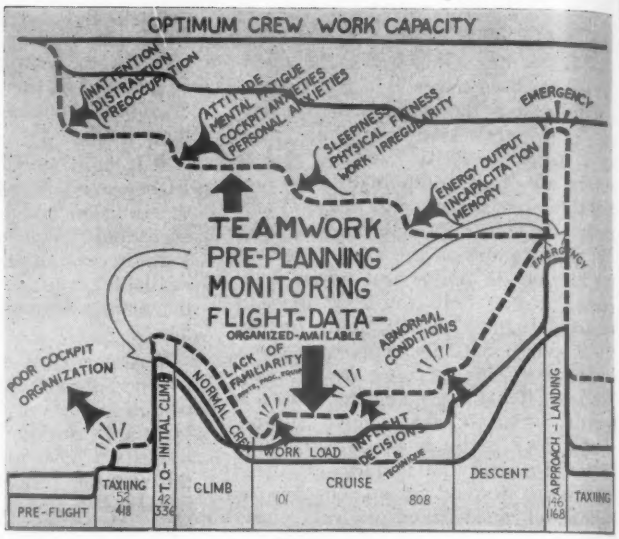


Fig. Four

the desire to know the intended thinking of a Captain on a flight in regard to a specific thing, yet not having it available.

Pilots are just as human as anyone; they too have Personal Anxieties, most of them beyond their control.

Other Factors

Sleepiness is one of the greatest single contributing factor to accidents on the highway. This is not only a problem of the motorist, but also the Pilot. Many individuals believe that there is a relationship between sleepiness and darkness. If this is so, we must take into careful consideration the fact that 16 out of 20 of the previously referred-to accidents occured at night, even though over 50% of all flying is done during the hours of daylight.

If sleepiness is recognized as a serious problem there are many things which can be done to reduce this hazard. A few of them are: better facilities for the management of rest; certain procedures for stimulating the mind and body for increased efficiency during certain work periods; sensible regulations in regard to duty hours, particularly the hours between 8 p.m. and 8 a.m.

Physical Fitness is another factor. Even though a Pilot goes to work in top physical condition at the beginning of a trip, it does not necessarily mean that he is going to be in top physical condition throughout the entire trip. Some authorities claim that there are three things which influence the physical condition of an individual, thereby influencing his efficiency; namely, rest, food and warmth. Any one of these three can be missing without any serious impairment to efficiency, but, if two or more are missing, there will be a physical let down in regard to ability to do the job well. For example, if a Pilot has had insufficient rest before a flight, he must have proper food and warmth to maintain a physical condition conducive to maximum efficiency.

Work Irregularity A Problem

We who are close to the picture of airline scheduling recognize Work Irregularity as a continuous problem. We live a normal daily life at home with our families and then, at irregular intervals, must work at night for periods which can extend to as high as sixteen hours on duty. I feel it is again necessary to recall the fact that the hours of darkness were involved in 16 of the 20 Human Factor Terrain Collisions in the U. S. during the past ten years. The significance of this can't be overlooked.

In looking at the factor of Energy Output, it is only necessary to state that scientific research procedures have determined that a pilot, who has a relative lack of familiarity with the aspects of his job (such as the airplane, route, and procedures), will have a higher output of energy than the Pilot who is more familiar with these. This greater expenditure of energy has an influence on efficiency by contributing to mental and physical fatigue.

Memory is the last factor in this group. It is only necessary to mention that Pilots rely a great deal on their immediate memory for navigation, particularly during instrument procedures. Even though memory efficiency varies greatly among individuals, anyone's memory is subject to lapse under peak work load conditions. Many Pilots continuously refresh their memory by periodically referring to printed flight data which they carry with them on all flights. It is during the hours of darkness that this navigational flight data is most inaccessible due to inadequate cockpit lighting and storage facilities. There is a natural reluctance to refer to such data during this period of darkness due to the high degree of distraction from other duties. The possible relationship of this to the fact that sixteen of the twenty Terrain Collisions referred to previously happened during the hours of darkness cannot be overlooked.

Cumulative Influence Great

We have briefly reviewed the four categories of things which cause the work load to rise above the normal and the 13 things which influence the capacity for work at any given moment to be somewhere below the optimum. It is when the influence of these things are such as to cause the moment work capacity curve to fall below the work load curve that the potential human factor accident exists. The cumulative influence of all seventeen factors shown on the chart is greatest during the last phases of a flight, the descent and approach. Let's see how this fits into the picture. The fact cannot be altered that 19 of these 20 accidents we are considering occurred during the descent and approach—where the influence of these 17 factors was the greatest. The other one was during the last twenty minutes of cruise, just prior to descent. To be more specific, facts which are available indicate that 14 of these 17 factors were present in the DC-6 Terrain Collision at Fort Collins,

Colorado, in 1951; 12 in the DC-6B collision at Oakland in 1951; and 13 were present in the recent DC-6B accident in the San Francisco Bay on April 20th of this year.

If you agree with the reasoning up to this point, then the problem simply stated is this: What can be done to keep the moment work capacity at a high value close to the optimum and the work load at a low value close to the normal so that the work load placed upon a crew never exceeds their work capacity?

Suggested solutions are schematically shown in Figure 4. Optimum crew work capacity can be maintained at a high level by: Making certain the crew has a comfortable and efficient "office" in which to work; intelligent and mature crew members; by insuring the existence of adequate training procedures; by providing efficient tools with which to work; and by maintaining a maximum level of experience in every cockpit. Crew members should be provided with a reasonable opportunity to obtain adequate experience in new equipment under the most favorable conditions that can be provided.

Recognition should also be made of those intangibles which adversely affect these work load and work capacity curves and the necessary steps taken to decrease the influence of those which are partially or wholly controllable.

Essential Cockpit Factors

It is the firm opinion of this ALPA Committee that if the two suggestions above are carried out in an intelligent manner (including the existence in every cockpit of the four factors of Teamwork, Pre-planning, Monitoring, and available and well-organized Flight Data) Human Factor Terrain Collisions in the future will be substantially reduced.

To accomplish these four factors in every cockpit, it is recommended that certain cockpit procedures be adopted. These procedures include the visual display of flight data in a lighted holder in such a manner that it is visible to all crew members in the cockpit. Such a holder has been developed by one of the major airlines in cooperation with this committee and is now being manufactured.

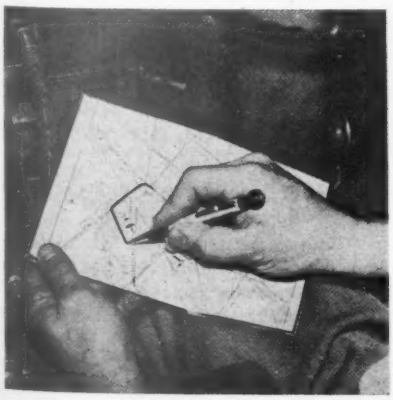


Fig. Five

By the proper use of this holder all four of these factors can be achieved. Here is one recommended procedure illustrating how easily these things can be accomplished. Let's take the first phase of a flight for example. Area charts that are used by all crews are familiar. This is placed in a plastic envelope similar to those that can be purchased at any stationery store. While on the ground, before take-off, when the departure clearance is received from the Traffic Controller by radio, it is traced onto this plastic with a grease pencil (Figure 5). This includes the entire clearance for departure including the flight path, altitudes, etc. This graphic illustration of the departure is then placed in the lighted holder in view of all crew members (Figure 6). What has been accomplished for this phase of the flight? Let's take a look:

All of the flight data is well organized and available for immediate visual reference day or night to all crew members.

A Monitoring System for human error exists. This is accomplished by the fact that to be a monitor of another individual one must know his intended thinking. Since the intended thinking (in regard to navigation) of the pilot flying the airplane is graphically illustrated a monitoring system automatically exists.

A Maximum Planning of the instrument departure has taken place before the take-off.

The graphically illustrated departure becomes a medium which is the basis for Teamwork in regard to navigational functions, similar to the way a check list is such a medium regarding the positioning of controls.

Improved cockpit procedures in regard to the other phases of a flight have been under development for 18 months and are in the final stages of perfection. They make use of this same lighted holder for it is felt that only through such a medium as this can the flight data be made available for immediate visual reference both day and night and standardization of procedures be accomplished. It is the objective of those who are working on these procedures to reduce the effectiveness of the 17 intangibles which were discussed previously. This will result in having the work capacity and work load curves in a relative position closer to their base as shown by the shaded lines on Chart No. 4. This results in higher work loads during normally low Work Load periods such as pre-flight and cruise. This is justified by lowering the tops of the high work load periods.

Conclusions

It is a reasonable conclusion that the 20 terrain collisions in the past 10 years which have been attributed to so-called "Pilot Error" can be practically eliminated in the future. A pilot, being human, is subject to deviation from the true course of action; however, it must be recognized that the causes of such deviations are usually out of his control.

When the work load placed upon an individual rises above his work capacity at that moment, he becomes prone to such deviations. The possibility of the entire crew making such deviations in regard to navigation is remote if the flight data is well organized and available for immediate visual reference day and night; if there is a system of Monitoring for such individual deviations; if there is a maximum amount of Pre-Planning and functioning as a closely knit team.

Further, the factors which adversely influence work load and work capacity must be understood by all who control them. When such understanding exists, then specific answers can be put into effect to prevent these accidents in the future.

It is up to every participating group and individual in the industry to squarely face the problem and the related factors involved in this study. There must be personal responsibility to put into effect answers to these problems. After considerable research, analysis and careful thought I have recommended some of the answers.

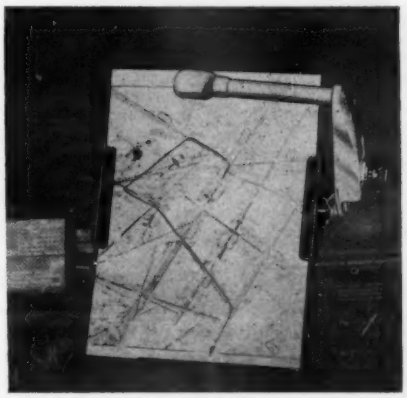


Fig. Six

Employment Agreements, 1953

In 1951 ALPA Set a Goal: Every Pilot Under a Current Agreement. Has the Goal Been Reached? This Story Gives the Answer.

By Jack Christie and Karl Ulrich

On September 13, 1953, one of the nation's largest newspapers carried a story which marked a milestone in ALPA history.

"Survey Shows Record Accord on Pilots' Pay," the headline read, *"Goal Attained After Two Years of Work."*

The article pointed out: "For the first time in the history of the Air Line Pilots Association, there are no long-standing salary disputes with the nation's air carriers."

Therein lies an excellent summation and a concise overall appraisal of the status of ALPA's negotiations as they exist today.

The significance of this situation is further enhanced by even a superficial comparison of where ALPA stands employment agreement-wise in September, 1953, as compared with practically any other period in its history.

Improvement of rates of compensation and working conditions, along with air safety, was one of the objectives in the founding of ALPA. During its earliest formative period, the predominant problem was to obtain a satisfactory labor relations law under which agreements for pilots could be negotiated. Then, after many years of effort when air line pilots were brought under the Railway Labor Act in 1936, the problem of obtaining a law gave way to the newer problem of finding a workable application of it. It was not until 1939 that ALPA signed its first agreement. That accomplishment was important, the product of many years of effort. But still, a sound, overall policy was lacking as subsequent events later proved.

In the post-war years, for example, a current agreement was a rarity. Pilots, more often than not, were flying equipment for which rates hadn't been set. Negotiations on a full 13 of the leading air lines were so bogged down that the carriers attempted—and almost succeeded, it can now be said—in forcing the pilots into industry wide collective bargaining.

Many Unsigned Agreements in 1951

In the past, disputes over pilot employment agreements have extended as long as 36 months after expiration. Eighteen months was not uncommon; a year probably a reasonable norm. And retroactivity in agreements was seldom more than a token.

As late as 1951, the employment agreements on the majority of the major air lines were still awaiting renegotiations.

In a speech before the Aviation Writers Associations on October 3, 1951, stating the aims of the reorganized ALPA, President Sayen stated:

"ALPA intends to increase the entire tempo of its activity. In the past, many of our negotiations have been prolonged over two and three-year periods. There is some feeling that the prolongation of such negotiations has a deleterious effect upon pilot and industry morale. Our activities in this field will be expedited and the adjustments of the rules and working conditions under which the pilots fly for the various companies will, if ALPA has its way, be accomplished much more rapidly. We do not feel that the prolonged and complex negotiating procedures that have been followed in recent years are as productive of good labor relations as a more rapid solution to such problems.

"The pilots of some of the air lines are presently working under employment agreements concluded over three years ago. The air line pilots have been patient and conservative in their labor relations. There is a strong feeling among the ALPA membership, however, that long and protracted negotiations are not healthy for the air line industry. One of the objectives of the reorganization of the Association is to expedite the entire processing of pilot problems. This includes problems presently outstanding."

What is the situation today? What is the outlook for the future?

As this is written while the most recent round of negotiations are drawing to a close, close to 100 per cent of ALPA's members are working under current agreements. That is, they're flying under up-to-date, fit-the-equipment agreements, not agreements that are two or three years old and in a

TALKING THINGS OVER: Pilots and staff members discuss some points in an employment agreement. Shown in this photo, taken at the Home Office, are (l. to r.) seated: Leon Wollard (UAL); Karl Ulrich and Frank Albright, staff negotiators; standing: Jack Steidl and Harry Orlady (both UAL).

state of obsolescence. Only a handful of members are not covered by current agreements. And agreements on the two airlines to which these pilots belong are in the negotiation mill. All agreements signed since the first of the year have contained provisions for full retroactivity.

Several factors are responsible for this obvious transition, not the least of which has been the replacement of outmoded sit-and-simmer policies, with new negotiating concepts and thorough pre-planning.

Pre-Planning Important

In addition to the emphasis placed on pre-conference detail and extensive pre-planning, time lags in actual negotiations are kept to a minimum. Once an Agreement is opened under the Railway Labor Act, the Association now takes the rightful position that the process must run and continue, step by step, through direct negotiations, mediation, and subsequent steps to conform to the law. The Employment Agreement Department holds itself ready to meet with a carrier at any time, but insists that time elements embodied in the Railway Labor Act be observed.

Thus, prolonged and complicated negotiating procedures are circumvented; adjustment of rules and working conditions, as the records will indicate, are accomplished in a prompt manner.

This more rapid solution to our problems has made ALPA's relationship with the air lines more in keeping with the spirit and intent of the Railway Labor Act. It is a modern, and, moreover, a productive approach to improved employee-management relationships. It has had a net result of eliminating much confusion and preventing the snow-balling of many problems into a gigantic dilemma by solving them before they reach a critical state.

Behind all this are many complex ingredients.

To get an idea of the vastness of the total operation, take negotiations on your own air line and multiply it by 42, the number of air lines presently under agreement with ALPA. Then, add to these such miscellaneous, but complicated, agreements, as military contracts (the Korean airlift is an example) and innumerable interchange agreements which are as vitally important to pilots as their basic agreements.

200 Agreements Negotiated

If that's still hard to visualize, look at it another way: since 1951, ALPA

Status of ALPA Agreements

AIR LINE COMPANY	DATE OF RENEWAL	EFFECTIVE DATE LAST AGREEMENT
California Eastern Airways	July 1, 1954	Sept. 1, 1953
Frontier Airlines	Sept. 1, 1954	June 1, 1953
Airline Transport Carriers	June 30, 1953	Mar. 1, 1952
Colonial Airlines	July 1, 1954	June 1, 1953
National Airlines	July 1, 1953	July 1, 1952
Bonanza Airlines	Sept. 1, 1953	May 1, 1952
Continental Airlines	Nov. 1, 1953	Jan. 1, 1953
North Central Airlines	Nov. 1, 1953	July 1, 1952
Piedmont Aviation	Nov. 1, 1953	Oct. 7, 1952
Transocean Air Lines	Oct. 1, 1953	(reopened)
Flying Tiger Line	Nov. 1, 1953	Nov. 1, 1952
Pacific Northern Airlines	Dec. 1, 1953	Jan. 1, 1952
Southern Airways	Dec. 1, 1953	Dec. 1, 1952
Allegheny Airlines	Jan. 1, 1954	Jan. 1, 1953
Capital Airlines	Jan. 1, 1954	Jan. 1, 1953
Mohawk Airlines	Jan. 1, 1954	Jan. 1, 1953
Caribbean Atlantic Airlines	Jan. 1, 1954	May 1, 1952
Transocean Air Lines	Jan. 1, 1954	Jan. 1, 1952
Hawaiian Airlines	Feb. 1, 1954	Feb. 1, 1953
West Coast Airlines	Apr. 1, 1954	Mar. 1, 1953
Western Airlines	Feb. 1, 1954	Feb. 1, 1953
Ozark Airlines	May 1, 1954	Mar. 15, 1953
Pan American World Airways	May 1, 1954	Nov. 17, 1952
Central Airlines	May 15, 1954	June 1, 1953
Pioneer Airlines	June 1, 1954	Sept. 1, 1953
Riddle Aviation	May 1, 1954	May 1, 1953
Southwest Airways	May 31, 1954	Dec. 1, 1952
Alaska Airlines	June 30, 1954	July 1, 1953
Eastern Airlines	July 1, 1954	Jan. 1, 1953
Trans-Pacific Airlines	June 30, 1954	Jan. 1, 1953
Northeast Airlines	Aug. 1, 1954	Aug. 1, 1953
U. S. Airlines	Aug. 1, 1954	Oct. 28, 1952
United Air Lines	Sept. 1, 1954	Mar. 1, 1953
Lake Central Airlines	Sept. 30, 1954	July 1, 1953
Carco Air Service	Oct. 1, 1954	Oct. 1, 1952
Trans-Texas Airways	Sept. 30, 1954	July 1, 1953
Trans World Airways	Dec. 1, 1954	June 2, 1953
American Airlines	Jan. 1, 1955	Aug. 1, 1953
Northwest Airlines	Jan. 1, 1955	July 1, 1953
Delta Airlines	Feb. 1, 1955	Aug. 1, 1953
Braniff Airways	Feb. 16, 1955	May 16, 1953
Pan American Grace Airways	Apr. 30, 1955	July 1, 1951

has negotiated a total of 200 agreements of various types and often has as many as six negotiations running concurrently. To keep all agreements current, they must be negotiated and signed at the rate of more than one a week.

ALPA's Employment Agreement Dept. now has four staff members assigned to the Home Office in Chicago. A fifth staff member is permanently located on the West Coast. It is contemplated that an ALPA office will be opened in New York sometime this year. This poses a problem, inasmuch as it takes several years of development in ALPA work for even a man with past negotiating experience to become familiar with air line and pilot problems. The total combined Association experience of the department staff at present is in excess of 33 years —indicative of the stability and experience which is necessary for good pilot representation.

Probably many pilots, with the exception of those who have been active on negotiating committees, are not more than casually familiar with the mechanics that go into negotiating their agreements. Regardless of the air line by which you are employed, they are basically the same.

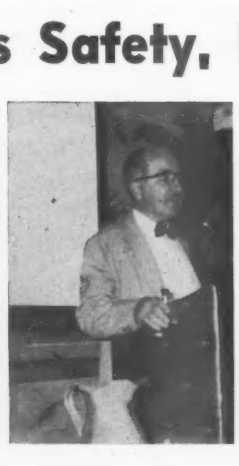
There are a total of 119 Councils with which the Employment Agreement Department maintains contact for information on all contract matters. Sixty days prior to a contract opening date, all councils of an air line are notified of the impending deadline date on which the wishes and proposed changes of the pilots of that particular air line are to be submitted. The Employment Agreement Department does not propose specific changes of its own. Rather, it acts more in the nature of a clearing house. The pilots of each air line submit the changes which they feel are justifiable. Once the Councils have been notified to submit their changes, there is a definite follow-through by the Department so the proposed changes are received in time to be processed to final form by the Department prior to the deadline date for service to the Company.

These letters to the Company are signed by the President of the Association and conferences are held between the department and the President before these letters are mailed. This is to insure that the proposals do not conflict with ALPA policy. The proposals are then mailed to the Company, and a date proposed to begin conferences. The negotiator then sets up a pre-conference meeting with the pilot committee and follows the case through to a conclusion, which may include mediation, or, any other steps in the Railway Labor Act. The Act sets up definite provisions within which bounds negotiations must be confined.

For illustrative purposes, let's take a case where direct negotiations have failed. It is then the responsibility of this Department to institute a request to the National Mediation Board for the service of a Mediator, and, with the advice and counsel of the President's office, completely handle all matters pertaining to the case. An application is submitted to the Board requesting their services and furnishing them with copies of the exchange of correspondence between the Company and the Association, as well as a copy of the proposed changes. We urge the Board to assign a Mediator as soon as their schedule will permit. When a mediator has been assigned, the Employment Agreement negotiator and the pilot members of the contract committee meet with the Mediator for the purpose of trying to resolve the unsettled questions. After spending a reasonable amount of time in Mediation, depending upon the number of items involved in the dispute, if agreement cannot be reached, there is then a proffer of arbitration from the National Mediation Board. It then becomes necessary for the Association President, the negotiator, and the pilot members of the negotiating committee or Master Executive Council, to make a determination as to whether or not it is

(Continued on page 12)

When the Topic's Safety, Everyone Listens



From every area, reports have indicated extreme success for ALPA's Local Air Safety Conferences. It is not an exaggeration to say that they have proven one of the most successful projects of this nature ever undertaken by ALPA. It has proven too, that no subject is more important to pilots than air safety.

Many hundred persons participated in the conferences, many thousands more attended. It is impossible to give everyone the credit they deserve.

One of the typical conferences, large in attendance and broad in scope and interest, was that in Minneapolis. Shown in action above are the speakers which contributed to its success. They are (l. to r.): Capt. Croft (BNF), Regional Safety Committee Chairman; G. W. Taylor, Boeing Engineer; A. D. Niemeyer, CAA Air Carrier, Mpls. Office; Dick O'Neal, NWA pilot; L. S. Schoeder, Minn. State Dept. of Aeronautics.

Flying Saucers --- Fact or Fancy?

In an exclusive article to THE AIR LINE PILOT a well-known author reveals new facts on a controversial subject.

By Major Donald E. Keyhoe, USMC, Ret.

In a recent issue of the Air Line Pilot, Capt. Joe Hull predicted that 1953 should mark the end of the "flying saucers." After several months behind the scenes at the Pentagon, I believe Captain Hull has been misled like other sincere converts to the theories of Dr. Donald Menzel.

Since 1951, unknown to most Americans, a small group of high Government officials has been secretly briefed on the saucers by Air force Intelligence officers. During the past year, with Air Force clearance, I have seen a large part of the evidence used in these secret briefings. This evidence has included over 40 of the most important unsolved sightings in the files of the Air Technical Intelligence Center. In addition, ATIC has furnished me with official statements flatly refuting Dr. Menzel's explanations.

Like Captain Hull, I have carefully read Dr. Menzel's book, Flying Saucers. In view of Menzel's reputation and scientific standing, his claims surprised me; none of his answers jibed with official evidence already in my possession. To make doubly sure, I put several questions to Project Bluebook, the saucer investigating agency at Dayton. Here is the first part of their official answer, released to me for publication in my new book, "Flying Saucers From Outer Space."

"These explanations were known to the Project, and carefully considered, long before Menzel published his theories. They explain only a small per cent of the sightings . . . At the request of ATIC, prominent scientists analyzed Menzel's claims. None of them accepted his answers . . . . Dr. Menzel was invited by Project Bluebook to apply his theories to any of all of the unexplained sightings, using Project records cleared for this purpose. He has not availed himself of this offer . . . ."

In view of this, Menzel's easy solution of specific sightings takes on a new light. One which he explained was the Mantell case. As most air line pilots know, Capt. Mantell was killed when his F-51 disintegrated during a saucer chase. The strange object he chased was seen by thousands in Kentucky, including pilots and tower men at Godman Field.

According to Dr. Menzel, the pilot was lured to his death by a "sundog." To check on this, I queried Project Bluebook:

Question: "Does the ATIC accept Menzel's sundog explanation of the Mantell case?" Answer: "No."

About the Article

When Capt. Joe Hull's article, "Obituary of the Flying Saucers," appeared last month, THE AIR LINE PILOT had no idea of the furor it would whip up. From letters received from our readers, the subject is obviously far from dead. "Give us another article, one for us 'believers,'" was the composite gist of their requests. This is it. The author, a free-lance writer, has written numerous articles on Flying Saucers and is authoring a forthcoming book, "Flying Saucers from Outer Space." This article is based on research and facts compiled in the writing of that book. It has been cleared by the Department of Defense and contains some facts released to the public for the first time. This story may not be reproduced, in whole or in part, without the express permission of the copyright owner, Henry Holt and Co., New York.

Next, Dr. Menzel "explained" the 1948 sightings by EAL pilots near Montgomery, Alabama. The strange, wingless ship they reported was also sighted by Air Force observers at Robbins Field, Macon, Georgia.

Dr. Menzel's answer: The witnesses were misled by a mirage—the effect of a temperature inversion. The Air Force answer to this: "The ATIC does not accept Dr. Menzel's explanation of the EAL sightings in 1948, near Montgomery, Alabama."

In a third famous case, that of Lieut. George Gorman, Dr. Menzel said the light which Gorman chased was only a light reflection from a distance, caused by a whirlpool of air over his F-51's wingtip.

Again, I checked with Wright Field. Here is their answer: "The ATIC does not accept Menzel's light reflection solution."

Frankly puzzled, I couldn't understand how Menzel had reached his conclusions after seeing all the Air Force records—I was positive he would not have tried to explain the sightings without all the evidence. To make certain, I asked ATIC about this point:

Question: "Did Dr. Menzel obtain all the available records in these three cases?" Answer from ATIC: "He did not obtain this information. In answer to a query, he was offered all Project data on these and other cases, through usual channels. We have heard nothing further from Dr. Menzel in regard to this."

Considering this, Menzel's complaint about lack of Air Force cooperation seems a bit cockeyed:

"Scientists who might have easily provided the key that would unlock the secrets of the saucers did not receive detailed information necessary for a serious study of the whole problem."

Nailing down their statements on the temperature-inversion theory, ATIC gave me factual proof in three released sightings.

First, a sighting at Bellefontaine, Ohio, August 1, 1952. About 11 a.m., a glowing disc was seen from the ground, and also picked up by GCI radar near Wright Field. Two F-86's were vectored toward the object. Both pilots maneuvered to make sure it was no reflection, then climbed to above 40,000 feet, attempting camera runs. During this time, the radar gunsight on one F-86 caught the UFO (Unidentified Flying Object). The other plane's radar sight was caged. On a second run, one pilot clicked off several feet of film, which later showed a bright, round shape, the edges blurred because of the distance. (The UFO was estimated to be between 12,000 and 20,000 feet above the jets). Here is the official ATIC analysis, cleared for me:

MAA MEETING: The Board of Directors of the ALPA Mutual Aid Association are shown here as they met recently at the Home Office. In photo: Seated (L. to R.) G. T. Henderson, UAL; M. E. Swanson, NWA (Vice-President for Region III); and S. J. Devine, UAL. Standing (L. to R.) W. W. Anderson, President's Department; M. R. Jones, AA; Lucille Shimek, MAA Department; and C. E. Cochran, Ozark.

"The ground radar squadron established two facts: That the UFO moved at 400 knots, that the F-86's and UFO appeared simultaneously on the GCI scope. It is obvious all eyes and antennas put a fix on the same object . . . not a balloon, since speed was too fast . . . the object moved against the wind, its blip size that of a normal Aircraft. It was not a known A/C because the altitude was too high. It was not astronomical as the dual radar returns eliminate this."

Then the ATIC proceeded to kick the Menzel theory squarely in the teeth:

"The electronic or visual mirage of meteorological phenomena is out of the question as the radar set was on high beam and both would not occur simultaneously in the same place. The sighting occurred above the weather. Conclusion: Unknown."

In a similar simultaneous radar and visual sighting, near Port Huron, Michigan, the ATIC gave me this official conclusion:

"The temperature inversion theory will not explain simultaneous visual and radar sightings when observers on the ground and in planes see a UFO at the same spot, when a plane's radar has locked on the object, and ground radar stations have both the plane and the UFO on their scopes at the same spot. Conclusion: Unknown."

Finally, in the famous Washington sightings, in July of 1952, the Air Force absolutely repudiated its earlier temperature inversion suggestion — and gave me an Air Force spokesman to make it official. But first, I checked for weeks at WNA Control Center and with top radar engineers, and leading scientists at least equal to Menzel in reputation, if not more so. One was Dr. Hagin, Chief Radio Astronomer of the Naval Research Laboratory. Here is what Dr. Hagin told me:

"Even with a heavy inversion, conditions would have to be very unusual to cause effects like those reported at Washington. I'd say it was impossible, with blips pin-pointed by three radar stations and lights seen simultaneously at the same points."

"How much inversion is needed for ordinary effects?" I asked him.

"At the very least, 10 degrees Fahrenheit—to get really strong effects, it would have to be much larger. Even then, it couldn't explain the simultaneous sightings."

I checked with the Weather Bureau experts at the airport. The inversion on the first week-end had been just *one degree* Fahrenheit; barely two degrees, the second time. Later, I asked for the official Air Force answer. Major Lewis Norman, a jet pilot and an expert on radar and temperature inversions, was assigned for this purpose. Confirming what Dr. Hagin had said about the required inversion—Norman set it at "between 9 and 18 degrees, Fahrenheit"—he added:

"The low inversions on both occasions could not possibly explain the Washington sightings."

I can readily see why Captain Hull and others accepted Menzel's book as gospel. But Menzel's answers, according to top scientists working with ATIC, explain only a very small number of saucer sightings.

It may interest the members of ALPA to know that for months the Air Force and Navy secretly analyzed some important saucer movies taken by Navy Warrant Officer Delbert Newhouse, in 1952.

These pictures show a formation of round, glowing objects maneuvering at high speed. Final conclusion of ATIC and Navy Photo-Interpretation: *No known conventional objects.*

Certain Air Force officers at the Pentagon planned a public press showing of the film, with a frank admission for the public that the objects were real, and beyond the performance of any known aircraft. But after a fight by the Pentagon "silence" group, this plan was killed, and the pictures kept secret.

In my opinion, no one who examines the official reports released to me can doubt that the saucers are real. Repeatedly, Air Force pilots sighting them have insisted they are "some kind of revolutionary machine, with a performance capability beyond that of any known aircraft on earth."

In an official Air Force document, it is stated that an increasing number of officials linked with the investigation are convinced "that the saucers are interplanetary, if the controlled maneuvers reported by many competent observers are correct."

After 4 years of investigation, I am also convinced that this is the only logical explanation.

The Cover Picture: Turbulence Flying

The problems, hazards, and possible solutions of turbulence flying was the theme of a joint ALPA-ATA meeting on Sept. 22 and 23. Shown at the conference (left to right) are:

Front row, H. G. Portman, UAL; A. W. Stainback, UAL; L. O. Meredith, AA. Second row, William Becker, ATA Operations Specialist, Washington; Clarence N. Sayen; Ted Linnert; Craig S. Timmerman, ATA Regional Operations Representative, Chicago. Third row, D. L. Phillips, TWA; J. Brown, TWA Chief Meteorologist; I. E. Sommermeyer, General Manager Flight Operations, UAL; Fred Bailey, AA Chicago Chief Pilot; D. Darrow, AA; C. H. Ruby, NAL; E. J. Kershaw, Operations Executive, NAL.

MEET YOUR VICE-PRESIDENTS

Captain M. E. (Mel) Swanson, ALPA Vice-President of Region III, is no Johnny-come-lately to the aviation scene. He brings to his office the wisdom and maturity of a man whose career has paralleled the growth of commercial aviation and ALPA.

Born at the turn of the Century at Columbus, Ohio, August 17, 1900, he did his first flying at Norton Field in the city of his birth in 1925. He has been a member of ALPA since 1941.

Like most early-day pilots, he weathered the uncertain days of a young industry the hard way. He was Instructor and Operations Manager of flying schools in Wisconsin and Florida in 1929-30. He barnstormed Ford Tri-motors for eight years, covering all but eight states with air shows and circuses. He was a racing pilot. He participated in the National Air Races in Chicago in 1930 as well as many others throughout the country.

Capt. Swanson's air line career began in 1937 when he joined NWA as company test pilot. He has been flying for them ever since.

During World War II he had supervision of flying for NWA Air Transport Command contract on the CANOL project near the Arctic circle the latter part of 1942 and early 1943. He also flew the Canadian and Alaskan Theater on the Aleutian Chain for ATC.

His ALPA history shows he was active as officer and Air Safety Chairman for Local Executive Council No. 1 for several years. He represented pilots on NWA's system and in Washington in the Martin 202 controversy and also represented NWA pilots and stockholders in Wall Street during NWA and Capital Airlines' proposed merger. He was extremely active in ALPA's reorganization.

More recently, he was a member of 1952 and 1953 NWA Agreement Negotiating Committees.

At present, in addition to his vice-presidency, he is a member of Board of Directors of Mutual Aid Association.

He has flown most all types of equipment, including autogyro and lighter-than-air aircraft.

Captain Swanson is the father of two sons and has two grandsons.

He is a member of Minneapolis Hangar QB's.

Recommend Radar Safety Beacon

The development of a Common System Secondary Radar Safety Beacon having characteristics proposed by the Joint Communications-Electronics Committee of the Joint Chiefs of Staff has been recommended by the Radio Technical Commission for Aeronautics as a supplementary aid to primary radar for improving air traffic control and increasing flight safety.

ALPA is represented on this committee by President Sayen. It is sponsored, supported and composed of 100 member organizations for the development of aeronautic telecommunications.

Use of the Radar Safety Beacon offers three principal advantages:

1. Improved reliability of the radar traffic control system.
2. Positive identification of aircraft by use of coded replies.
3. Faster movement of traffic due to closer separation intervals.

It will be particularly effective at distances and under weather conditions which render unsatisfactory the reflected signals of Airport Surveillance Radars (ASR) now in use.

Primary ground radar transmits pulse signals which reflect from aircraft as "echoes." Only a small part of the energy of the original signal is reflected, however, and a very weak signal is returned to the ground. Under adverse conditions, these weak signals can be absorbed in the atmosphere to such degree that no usable reflection is received.

In the secondary system, the ground signal "triggers" equipment in the aircraft which transmits a reply pulse signal many times stronger than an "echo." In addition, these replies may be coded to provide aircraft identification. This permits closer spacing of aircraft in the traffic pattern by eliminating the need for maneuvers necessary with primary radar to associate each aircraft with a particular "blip" on the radar scope.

The complexity of air traffic control has increased rapidly and steadily in recent years because of expanding defense needs and increased air traffic at higher altitudes, faster speeds, and over longer distances.

This condition created a need for a more modern system of air traffic control. Primary radar provided much of the necessary improvement, but meteorological disturbances may cause weakening of the reflected signals and a resulting loss of target. Since primary radar does not provide identification of aircraft in a controlled area, time-consuming maneuvers are necessary to establish the association between an aircraft and its "blip" on the radar scope.

The secondary radar overcomes such shortcomings inherent in the primary system which make the latter incapable of meeting today's increased requirements under unfavorable conditions.

The amplified signals from the Radar Safety Beacon improve surveillance by providing continuous tracking of all sizes and types of aircraft under all conditions of weather and restriction of visibility. Coded replies by the beacon assure rapid, positive identification of aircraft entering a controlled area or re-identification when continuity of tracking has been lost temporarily by the primary radar. Closer separation intervals of aircraft attain faster movement of traffic, which lessens congestion, and provides more efficient utilization of the airspace and the airport runways.

A report by a Special Committee of RTCA (SC-64) specifies among its performance objectives that the secondary radar can operate at ranges up to 200 nautical miles and altitudes of 60,000 feet, with continuous tracking to within one mile of the interrogation transmitter. The beacon will be capable of giving 10 coded replies in response to interrogation from the ground station and will not interfere with the performance of other radar equipment.

Let's Follow U. S. Pilots on Safety: AAPA

The following editorial appeared in the June issue of the "Australian Air Line Pilot," publication of the Australian Air Line Pilots Association. It was written as the result of the impression carried home by AAPA's president, Capt. G. R. Andrews, after attending ALPA's Air Safety Forum. The Australian pilots, along with ALPA, are members of the International Federation of Air Line Pilots Associations which has as one of its prime aims the promotion of global Air Safety.

"The President's article on the American Association's Air Safety Forum should make clear the responsibilities that A.A.P.A. must assume. We must approach first things first. Hence the concentration on matters industrial. A.A.P.A. must, however, specialize in all matters, concerning aviation. This is not only desirable, it is a definite responsibility.

"As practising pilots we have a duty to the passengers we carry and to ourselves. We must, therefore, organize an Air Safety Group on the lines of our American friends. Who better to give opinions on aircraft gadgets, aids, etc., than the men who use these things all day and every day? We have in the past accepted the word and opinion of others almost without question.

"If we wish to add our opinion, we must be ready to back it with expert knowledge. We have that knowledge amongst our members, but it must be correlated before it can be put to the best use.

"We cannot delegate the responsibility of ensuring air safety to anyone.

"Invariably it is the pilot who discovers the incident that leads to an air safety problem. The present incident reporting system leaves much to be desired. The honest pilot who reports an incident may find himself in a predicament. The delays in answering these reports and apparent lack of action are at times frustrating. Hence incident reporting, in many cases, is non-existent.

"Pilots cannot accept anything, be it procedures, modifications, gadgets, etc., if there is the slightest doubt as to the effect on air safety.

"The prosperity of air transport is of vital concern to us. Our welfare depends on it. Air safety is vital to the continued prosperity of air transport.

"Surely we, who, to a very large extent, have the future of Australian air transport in our hands, must have some contribution to make to the maintenance of air safety.

"It is comparatively easy to form study groups. These will, however, be stillborn unless they receive support from each and every member.

"Branch meetings, at which discussions take place and State opinions channelled to the correct action group of the Executive Committee, will be a start. The formation of our own Air Safety Group is inevitable.

"The foundations can be laid now by the method outlined. Will you assist?"

Pilots' Agreements: A Story of ALPA Progress

(Continued from page 8)

best to accept arbitration, a question which must be decided on the basis of the situation in each individual instance. If an arbitration agreement cannot be reached due to a refusal of either party to arbitrate or inability to agree on an arbitration agreement, the decision as to circulation of a strike ballot must be made by the Master Executive Council of the airline and the President of the Association. The ballot certified and a withdrawal from service imminent, the President of the United States may appoint a Presidential Emergency Board. In this event, a case must be prepared and presented to such Board. When the results are announced, they must still be translated into a written agreement if they are satisfactory to both parties. If not, further action may be taken.

Agreement may come at any stage in the Railway Labor Act's procedures for resolving disputes. However, even a signed agreement only starts the work of the Employment Agreement Department.

Negotiator Responsibility

One of the new concepts inherent in the revised ALPA negotiating policy is that of contract administration. Only in case of an extreme emergency is there any change in negotiators. The negotiator who handled any project is responsible for the interpretation and implementation of that contract and any inquiries on the Agreement are referred to the staff member who handled the negotiation in question. The reason for this is obvious: the negotiator (and the members of the pilot negotiating committee) have the full benefit of the discussions during the conferences and are familiar with the intent of the parties on each of the items of negotiation. The general procedure thus follows a logical and progressive pattern. A pilot with a problem first takes it up directly through his pilot representative with his Company, first at the local level, then at the system or airline level. If he is not successful in reaching a solution, the matter is then referred to the Employment Agreement Department and the negotiator who handled the case will give the particular pilot an interpretation on the question involved and confer with Company representatives concerning it. Naturally, this interpretation will take into consideration the intent of the parties during negotiations and the written word of the

AIR LINE PILOTS ASSOCIATION
MUTUAL AID ASSOCIATION

BALANCE SHEET

August 31, 1953

Assets

Cash:		
LaGrange State Bank		$13,058.36
Investments:		
LaGrange Fed. Savings & Loan Assoc.	$10,000.00	
U. S. Treasury Certificates	19,023.75	
Total Investments		29,023.75
Accrued Interest on U.S. Treasury Certificates		24.73
Total Assets		$42,106.84

Liabilities

Members' Deposits:		
On hand as of July 31, 1953	$29,375.00	
Net income during August, 1953	12,731.84	
Total Liabilities		$42,106.84
Number of Members		877

Agreement. If the pilot is not satitsfied with the interpretation of the Employment Agreement Department, he may then take the matter up with the Legal Department for the processing of a grievance.

Occasionally, language is written into an Agreement during negotiations which later may be found unworkable. Rather than let the matter run for a long period of time, as has happened in the past, the Employment Agreement Department, in order to avoid the building of friction between the pilot group and the Company, will propose corrective language in the form of a Letter of Agreement to eliminate the situation.

In addition to methods, there has also been a noticeable evolution in the Agreements themselves.

Since 1951 the following points have been well-founded in the industry: (1) Minimum guarantees for all pilots; (2) Common base pay; (3) A single system of pay for all pilots; (4) An improved mileage pay section; (5) Working condition rules reflecting credit for "on-duty" time, excess layover time, standby time, deadheading, and minimum days off at home; (6) Improved vacation and sick leave schedules without loss of compensation; (7) Current rules and rates of compensation adopted to the aircraft flown.

What does all this mean to you as an individual pilot?

It means better representation because of more efficient use of time and staff manpower. It means greater peace of mind because you know what you'll get for your flying, not what you'll get . . . if. It means your particular problems will get particular attention because someone is specifically assigned to your negotiations throughout.

It means, in a sentence, an efficient business organization devoted to this particular aspect of pilot representation and the maintenance of pilot standards on a current basis.

NAL CV-340 ACCEPTANCE: Upon the invitation of NAL Pres. G. T. Baker, a group of NAL pilots and ALPA representatives worked together with Convair in an acceptance program of NAL's first Convair 340. Flight and inspection revealed conformity with ALPA's previous evaluation report (See THE AIR LINE PILOT March, 1952 issue). Shown (l. to r.): R. S. Beckley, CAA Air Carrier; Capt. Ed Ferguson; Capt. Gannon, System Chief Pilot; A. W. Morgan, CVAC General Manufacturing Manager; S. B. Conlon, NAL Resident Representative (CVAC); H. F. King, CVAC Assistant Project Engineer; Capt. C. H. Ruby; T. G. Linnert, Home Office; A. C. Liska, NAL Sr. West Coast Representative (DACO); and R. J. Pfieffer, CVAC Commercial Sales.

Continued CIRVIS Cooperation Asked

The Air Force has again asked that all ALPA members cooperate in the Cirvis program. Cirvis is communications instructions for world-wide reporting of vital intelligence sightings from aircraft.

For the benefit of pilots who may not be familiar with this phase of the defense program, the following is extracted from the Cirvis Booklet:

WHO REPORTS: Pilots of all (1) United States Aircraft; (2) regularly-scheduled United States Commercial aircraft; (3) Civil Patrol Aircraft.

WHAT TO REPORT IMMEDIATELY: (1) Guided missiles; (2) Unidentified Flying Objects; (3) Submarines; (4) Group or groups of military vessels; (5) Formation of aircraft which appear to be directed against the United States, its territories or possessions.

WHAT TO REPORT UPON LANDING: (1) An individual surface vessel, submarine, or aircraft of unconventional design or engaged in suspicious activity or observed in an unusual location or following an unusual course; (2) confirmation reports.

WHAT NOT TO REPORT: (1) Surface craft or aircraft in normal progress; (2) Known U. S. military or government vessels (including submarines) and aircraft.

Defense officials said reports were particularly sought from pilots of NWA, PAA, Pacific-Northern, Alaskan Air Lines, and those air lines flying the North Atlantic runs. This, however, does not mean that other pilots should not report.

Air Line Pilots Association Federal Credit Union Financial and Statistical Report Aug. 31, 1953

BALANCE SHEET

Assets

	Aug., 1953
Loans (642)	$391,284.78
Cash	217,872.00
U. S. Bonds	345,528.92
Furniture & Fixtures	2,504.52
Prepaid Expense & Misc.	37.26
Total	$957,227.48

Liabilities

Shares	$924,480.57
Reserve for Bad Loans	13,430.29
Undivided Profits	2,681.04
Profit	16,457.77
Accounts Payable	177.81
Total	$957,227.48

STATEMENT OF INCOME & EXPENSE

Income

	Aug., 1953
Interest on Loans	$3,727.74
Investment Income	187.50
Total	$3,915.24

Expenses

Salaries	$ 988.81
Office Expense	199.83
Educational Exp.	1.20
Loan Insurance	285.91
Depreciation	62.72
Misc.	9.60
Total	$1,548.07
Net Profit	$2,367.17

Statistical Information

	Aug., 1953
Number of Members	2,387
Number of Potential Members	10,865
Loans Made Since Organization (Number)	2,490
Loans Made Since Organization (Amount)	$1,748,779.84

NAA Dinner Honors Aviation's Pioneers

Aviation pioneers from throughout the world will be honored at a dinner at the Mayflower Hotel in Washington, D. C., on Wednesday night, October 14, as a part of this year's celebration of the 50th anniversity of powered flight. Several of ALPA'S pioneer pilots will be present.

The banquet will be sponsored by the National Aeronautic Association to salute the men and women who have contributed to the progress of aviation in its half-century of development.

Lt. Gen. James H. Doolittle, chairman of the National Committee to Observe the 50th Anniversity of Powered Flight, will be toastmaster and Admiral Richard E. Byrd will preside.

Arrangements are being made by a committee comprising Admiral Byrd, chairman, Dr. John F. Victory, National Aeronautic Association, Grover Loening, aviation pioneer and aircraft designer, and Major Lester Gardner, publisher of aeronautical journals and founder of the Institute of Aeronautical Sciences. Walter T. Bonney, of the National Advisory Committee for Aeronautics, is program coordinator.

Founded in 1905

The dinner for the international air pioneers will bring together many early aviation enthusiasts from all countries affiliated with the Federation Aeronautique Internationale, world aviation organization.

Founded at Paris on October 14, 1905, FAI will be celebrating its 48th anniversary on the date of the dinner, and one of the speakers here will be Mr. C. Kolff, of the Netherlands, FAI president.

FAI is the international aviation body which authenticates speed, altitude, and endurance records attempted by its members. It is now considering the 100-kilometer and 15-25 kilometer closed course speed records and the helicopter speed and altitude records established by American fliers at the National Aircraft Show in Dayton, Ohio, early this month.

A Reminder

Have you mailed your application for loss-of-license disability insurance yet? Applications reaching the Home Office by November 1 will be effective on that date.

MIDWAY AIRPORT—MIDWEST MADHOUSE

A pilot, who because of geography, economics, or other circumstances is deprived of the experience of flying into Chicago today, is missing a dubious privilege that is not likely to come again in his lifetime. Not since the meteoric rise of commercial aviation to its unbelievable present day peak have we seen anything approaching the dizzying pace which is set daily at Chicago's Midway Airport, the busiest air terminal in the world.

630,000 passengers cleared its gates in July, surely a new record. Fifteen scheduled airlines poured unprecedented numbers of flights into the air terminal of this mushrooming capital of America's rich Mid-West. Its runways handle over 1,000 take-offs and landings a day—over 100 an hour during the evening—an incredible figure for such an outmoded airport.

Outmoded? Graded by any logical standard, Midway Airport has long since grown out of its 3-corner pants and into rompers, but unlike a normal child, its growth has been hampered by physical barriers, obstacles which preclude this precocious child from the greatness it deserves. It has proliferated until the seams of the rompers are bursting, but the city fathers who control its destiny seem oblivious to its need for relief.

During its rush hours, five to eight—normal for most fields—it receives and discharges airplanes at a rate which astounds even the men who fly the ships. It is not uncommon to sit at the end of the runway on a CAVU day for 12 or 15 minutes awaiting take-off, even though the flight has filed VFR. The radio frequencies used by approach control, ground control, and air control are choked with transmissions. Pilots flying into Chicago regularly become accustomed to two and three minute waits for a radio break, and arriving pilots are often forced to abandon normal approach procedures in good weather because it is impossible to establish radio contact and obtain a landing sequence because of heavy traffic.

And to add insult to injury, Chicago's airport has the highest rate of surface traffic of any airport in the world. A never-ending stream of service vehicles, jeeps, air conditioners, food caterers, and gasoline trucks infest this airport like a giant colony of ants. These vehicles are a definite menace to taxiing aircraft, especially at night, milling around as they do with a confident attitude that the taxiing captain can never be sure is not one of lackadaisicalness. More than one of these surface vehicles have already been devoured by the merciless propellors of big transport airplanes, but still they come on relentlessly, almost like "The Charge Of The Light Brigade." Traffic signs and rules at runways keep their drivers vigilant of landing aircraft, but it is the taxiing airplanes which present the gravest problem. A taxiing aircraft can be as lethal to a truck driver as a landing one. Midway is unique in that it has no way to divert this traffic because of its peculiar design. It is one of the few airports without taxi strips, airplanes being forced to use runways and perimeters for commuting to and from the gates.

What has happened to this once adequate airport that it should be required to absorb all the punishment now accorded it? Nowhere in the country do we see worse runways and taxi strips, some of them so undermined by heavy aircraft that they are only slightly better than plowed fields. This is little exaggeration. Some of the

(Continued on next page)

pits in the taxiways — the runways are always closed when they reach this deplorable state of deterioration — are enough to break the nose wheel off a modern transport unless the fording operation is conducted with plenty of finesse and at snail speed. Why has America's second largest city been accorded the dubious affluence of becoming our busiest air terminal? Why does this distinction not belong to New York, which is three times as large? The answer is easy.

Chicago has embraced the idea that the transport airplane will adapt itself to the airports now serving the big cities. That the Windy City has endorsed this thesis—and in doing lagged woefully behind—is best illustrated by its reluctant attitude toward improving facilities at the nation's busiest airport. For many years when open country prevailed around the field nothing was done to discourage building and it was only under the utmost pressure that we finally succeeded in relocating the railroad tracks that bisected the airport, allowing it to expand to a full square mile. It is hard to remember how the former field—one half the size—served the needs of industry then, even though the DC-3 was the airliner of the day. The antiquated terminal building at the southeast corner of the field was allowed to be taken by storm before the post-war powers that be in Chicago finally moved to provide larger quarters and better facilities.

We were hamstrung for several years, not only by the incongruous spectre of a schoolhouse on the edge of the airport, so sacrosanct that its windows dared not be defiled by high decibel ratings from aircraft taking off; we were forced to rely upon an independent electricians' union to turn our runway lights on and off. This was another Midway first. Whenever the wind shifted or a pilot found himself in better position to make a landing on another runway under bad visibility conditions, it was necessary for the control operator to call the electricians—housed in another building—to have them switch the lights. This highly undesirable and unsafe procedure was tolerated for many years and it was only in recent weeks that full control of the lights was finally restored to the tower, where it should have been all the time. No other tower in the country ever labored under a handicap as difficult and ridiculous as this.

And right about here would seem the appropriate time to pay tribute to the operators of Midway's tower. No other control tower anywhere outshines this one. What these men accomplish in an hour during bad weather conditions is little short of incredible. It never ceases to amaze pilots who consider themselves "traffic conscious" because they are based in New York, reputed to the "hottest" traffic area in the world. Chicago tower operators carry a responsibility second to none and it is unfair to these wizards of timing to keep increasing their responsibility beyond the demands of common sense and the tolerations of human intellect and endurance.

AID FOR KOREAN ILL: At Idlewild Airport, Captain Floyd M. Dean, an ALPA member, prepares to take off with $700,000 worth of drugs for Korea. Seeing him off are Gen. James A. Van Fleet (left) and Francis Cardinal Spellman (right). The drugs were donated by pharmaceutical houses; the air freight space by NWA.

What most cities have solved by diversion of traffic to other airports, Chicago has diligently avoided. Patently dedicated to a proposition of keeping Midway Airport alive and near the center of things, the city has allowed itself to be overwhelmed by a volume of traffic which no one airport has a prayer of handling successfully. The time when a mile-square airport (without obstructions) sufficed a big city's needs has long since ceased to exist. Especially now, when our airports are encompassed by housing and manufacturing projects, and 90 lbs. per square foot wing loading seems to be the vogue of the day. We simply do not have the usable runway lengths available, even though they measure out on paper. Midway is an especially difficult airport on which to utilize all the runway. It is surrounded by obstructions, making it difficult to "get in short," and it can be very unforgiving of the man who runs out of it.

What other cities have done, Chicago must do. New York has four major commercial airports, LaGuardia, Idlewild, Newark and Teterboro, every one equipped with ILS. Three large military fields complement the aviation picture for the New York area. By diverting the traffic the city has alleviated what would have become the same problem that is now facing Chicago, inadvertently forcing Midway Airport into its undeserved role as the world's busiest airport.

When O'Hare Field was built in Chicago (originally Douglas Field) the ostensible purpose was to ease the strangling problem which was sure to come at Midway. O'Hare Field is so far ahead of Midway, especially in runway length—the main pilot squawk, that we wonder what keeps the airlines from moving at least part of their operations there. If it is distance from the city which deters them, they had better forget this as a legitimate objection because the trend to the open country is on once more, and it promises to accelerate in coming years. The close-in airport, once considered the desirable port, is sure to go, a victim of man's technological progress.

What Detroit, New York, Los Angeles, Ft. Worth and New Orleans—to name a few—have done, Chicago can and must do. Midway, the once proud airport of a few years ago, now swollen with men in motion, is crying for relief. When may we expect it?

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